DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-000099
Date Inspected: 13-Mar-2007

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 800
OSM Departure Time: 1430
Location: Shanghai, China

CWI Name:	Liu Liu and Huang Wei			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☐ Yes	☐ No	☑ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☐ Yes	☑ No	☐ N/A
Qualified Welders:	☐ Yes	☑ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☐ Yes	☑ No	☐ N/A	**Approved WPS:**	☐ Yes	☐ No	☑ N/A
				Delayed / Cancelled:	☐ Yes	☐ No	☑ N/A

Bridge No: 34-0006
Component: N/A

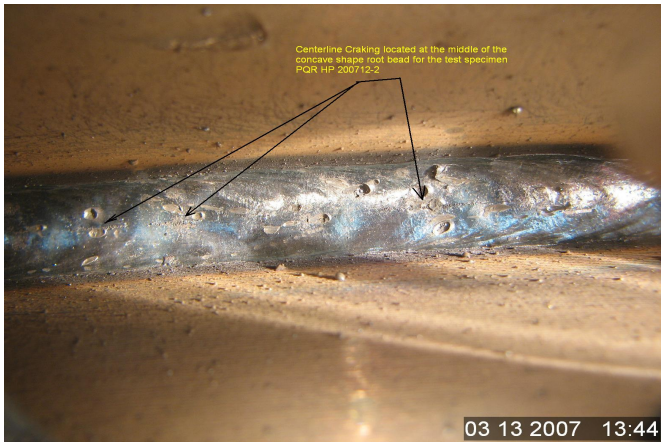
Summary of Items Observed:
Welding Qualification HP 200712-2

The CALTRANS Quality Assurance (QA) Inspector, Alfredo Acuna was present for the welding qualification testing pertinent for the welding qualification record (PQR) HP200712-2 (second attempt) scheduled for this project. ZPMC, welder operator Jiang Xiao Hu was observed by the QA Inspector performing welding operations following the preliminary welding procedure specification PWPS-B-T-223(2)1T-1 for the PQR identified as HP200712-2. Base metal was designated as A-709-50-2/Z25 (Heat # 06102938N) and appeared to meet the non fracture critical impact test requirement. The root opening of the joint was approximately 6 mm. ZPMC followed AWS 5.13 the production procedure WPS using the automatic flux cored arc welding gas (FCAW-G) process in the flat (1G) position with the 1.4 mm diameter TWE-711 electrode. The QA Inspector verified dimensions for the test coupon, amperages, voltages, travel speed and preheat temperature. The QA inspectors recorded temperature and welding parameters on the root pass and appeared to be in accordance with the Contract documents. ZPMC rejected the test specimen after visual inspection due to the presence of numerous centerline root cracks on the test coupon. The QA inspector concurred with ZPMC.
The digital photograph below depicts a typical linear indication found on the test coupon for the PQR 200712-2 rejected by ZPMC.

Welding Qualification HP 200712-3

After ZPMC practiced with three test coupons using different wire spools and welding machines. ZPMC, welder operator Jiang Xiao Hu was observed by the QA Inspector performing welding operations following the

preliminary welding procedure specification PWPS-B-T-223(2)1T-1 for the PQR identified as HP200712-3 (third attempt). Base metal was designated as A-709-50-2/Z25 (Heat # 06102938N) and appeared to meet the non fracture critical impact test requirement. The root opening of the joint was approximately 6 mm. ZPMC followed AWS 5.13 the production procedure WPS using the automatic flux cored arc welding gas (FCAW-G) process in the flat (1G) position with the 1.4 mm diameter TWE-711 electrode. The QA Inspector verified dimensions for the test coupon, amperages, voltages, travel speeds, preheat and heat interpass temperatures. The QA inspectors recorded welding parameters on the root pass. The welding parameters appeared to be in compliance with the Contract documents. ZPMC Director of testing Liu Liu accepted the root pass from the test specimen. ABF representative Song Wei Min brought to the attention of the QA inspector that a crack was present outside of the area of interest. The QA inspector performed visual weld inspection of the root pass. The QA observed a crack approximately 20 mm long and 100 mm from the right end (welding progressed from left to right). The QA inspector concurred with Mr. Song. The QA inspector questioned Mr. Liu about the present of a crack in the weld joint. Mr. Liu relayed to the QA inspector that the crack was not an issue because the crack was located outside of the area of interest. Mr. Liu directed ZPMC to continue testing right away and welded over the crack. On this date, ZPMC completed welding a total of 4 passes with FCAW-G. ZPMC removed the ceramic backing and the weld at the other side appeared to be in compliance with the Contract documents.



Summary of Conversations:

The QA inspector had a conversation with the Caltrans, QA Task Leader Dave McClary. The QA inspector brought to the attention of Mr. McClary that a root crack was found on the above mentioned location and ZPMC resolved to weld over because was outside of the area of interest without made any further investigation.
Mr. McClary and the QA inspector had a conversation with ABF representatives, Jeff Evans and Dave Williams. Mr. McClary and the QA inspector brought to the attention of ABF representatives that Mr. Song and the QA inspector observed in visual inspection that the two last test specimens for the PQR HP200712 had cracks in the root passes and ZPMC appeared to be was having difficulties welding a sound root pass with the ceramic backing. In addition, QA representatives relayed to ABF representatives that ZPMC decided to continue welding because the crack was located outside of the area of interest. Mr. William relayed that he would inform to ABF Welding Engineer Craig Knops of the cracking issues on this particular PQR.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

WELDING INSPECTION REPORT

(Continued Page 3 of 3)

Inspected By:	Acuna,Alfredo	Quality Assurance Inspector
Reviewed By:	McClary,David	QA Reviewer